REMARKS

This paper is filed in response to the official action dated November 18, 2009 (the official action).

Claims 1, 4, 7, 13, 14, 17, 23, 27, 28, and 31 are pending and at issue. Claims 10 and 30 have been canceled by amendment above. Claims 13 and 30 have been objected to on informal grounds. The pending claims have been variously rejected under 35 U.S.C. § 112, ¶¶ 1 and 2 on formal grounds.

The Examiner has removed the previous prior art rejections, indicating that Applicant's previous remarks were persuasive. Applicant thanks the Examiner for the careful reconsideration of the claims based on those remarks.

The office action has replaced these prior art rejections with new rejections of each of the pending claims as obvious under 35 U.S.C. § 103 based on suggested combinations of U.S. Patent 6,518,962 ("Kimura") in view of U.S. Pub. No. 20020126073 ("Knapp"). Applicant respectfully traverses, in light of the foregoing amendments and the following remarks.

As a general housekeeping matter, Applicant notes the Examiner's comments on pages 17-20. In light of the foregoing amendments, Applicant does not respond to these comments in detail. Characterizations as to what is well known in the art are traversed to the extent that they are stated to create official notice of the underlying assertion. If the Examiner intends to rely upon such statements, then applicant requests a showing supporting the assertion, in particular with respect to the claimed subject matter.

The Examiner makes other statements purportedly characterizing the invention. Applicant's invention, however, is defined by the terms in the claims. Applicant submits that the claims are properly construed based only upon limitations that are actually present therein and are not to be construed based off of these comments from the Examiner to the extent they are not consistent with the claim language.

In any event, the comments are rendered moot in light of the foregoing amendments and following remarks.

I. CLAIM OBJECTIONS

Claim 13 has been amended and claim 30 deleted. The informal objections are traversed.

II. CLAIM REJECTIONS – 35 U.S.C. § 112

In light of the foregoing amendments, the rejections of claims 1, 4, 7, 10, 13, 14, 23, 27, 28, 30, and 31 are traversed. Support for the amendments may be found through the written description and in the claims as originally filed. Reconsideration of the § 112 rejections is respectfully requested in light of the amendments.

III. CLAIM REJECTIONS – 35 U.S.C. § 103

Generally speaking, the instant application provides for a pixel driver circuit that includes a field effect transistor having a gate connection for driving an associated pixel in accordance with a voltage on that gate connection. Moreover, the circuit reduces the power supply voltage to each of the pixels until the gate voltage associated with an identified brightest pixel is at a maximum. This is performed in response to the gate voltage being lower than a maximum available such voltage. To the extent that the Examiner's remarks section comments coincide with this description, Applicant recognizes these comments. Inconsistent comments are traversed.

In any event, in light of the foregoing amendment, Applicant outlines below various distinctions between the claimed subject matter and previously-relied upon art of record, with the hope that the comprehensive nature of the discussion will result in expedited remove of the prior art rejections.

Claim 1 has been amended as follows:

> 1. A display driver for an active matrix electroluminescent display, the display comprising a plurality of electroluminescent pixels each pixel comprising a pixel driver circuit and a display element, each said pixel driver circuit including a drive field effect transistor having a gate connection for driving the associated display element in accordance with a voltage on the gate connection, the display driver comprising:
>
> a display element brightness controller configured to provide an output to drive a said gate connection to control the electroluminescent output from a said pixel;
>
> a voltage sensor to sense a said voltage on said gate connection; and

> a power controller coupled to said voltage sensor for controlling an adjustable voltage power supply to each of said plurality of electroluminescent pixels, said power controller configured to read a sensed voltage on each said pixel gate connection to identify a display element having a maximum brightness relative to others of said display elements, wherein
>
> said power controller and said display element brightness controller are configured to increase said voltage on said gate connection of said pixel having said identified display element and to reduce said power supply voltage, to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain a current to said identified display element substantially equal to a predetermined current, said increasing and said reducing in response to a said sensed voltage on said gate connection of said pixel having said identified display element less than a maximum available voltage for outputting from said brightness controller to said display and until said voltage on said gate connection substantially reaches said maximum voltage.

Thus the claim is returned to be more closely related to the original wording.

As conceded in the Official Action of 5/14/2007, Kimura fails to disclose at least a voltage sensor to sense the voltage on a control connection such as the gate connection in claim 1. Moreover, Kimura merely discloses "adjusting the voltage ... in such a manner that the measured current ID... coincides with the reference current Ire" (col. 23, II. 41 - 44).

Thus, Kimura fails to disclose at least identifying a brightest display element by reading the gate connection voltages of the pixels, or reducing power supply voltage to each pixel and increasing the voltage on the gate connection of the brightest pixel. Furthermore, Kimura no where describes increasing the voltage on a gate connection of the brightest pixel in response to the sensed gate connection voltage being less than a maximum available voltage and until the sensed gate connection voltage reaches the maximum available.

As such, Kimura cannot be said to teach "said power controller and said display element brightness controller are configured to increase said voltage on said gate connection of said pixel having said identified display element and to reduce said power supply voltage, to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain a current to said identified display element substantially equal to a predetermined current, said increasing and said reducing in response to a said sensed voltage on said gate connection of said pixel having said identified display element less than a maximum available voltage for outputting from said brightness controller to said display

and until said voltage on said gate connection substantially reaches said maximum voltage," as recited in claim 1.

Knapp merely discloses a display element 20 coupled to a transistor 24 operated by switch 32, as shown in Fig. 2. Thus, Knapp clearly fails to disclose the subject matter noted above as deficient in Kimura.

For these reasons alone the rejection of claim 1 is traversed.

Moving on to consider various other art of record, Applicant notes that Shen relates to correcting non uniformities in light by predicting a decay in light emitting efficiency, deriving a correction coefficient, and altering the driving current to compensate, as defined in Shen claim 1. In contrast, claim 1 provides for changing the power supply voltage and gate connection voltage "to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain. . .a predetermined current," as recited in claim 1. Furthermore, Shen fails to specify exactly how the driving current is compensated.

As substantially conceded in the Official Action of 8/13/2008, Yamazaki fails to disclose at least a voltage sensor to sense the voltage on the gate connection. Consistent therewith, and as defined in the abstract of Yamazaki, "the luminance of the EL elements is controlled in accordance with the amount of electric current flowing in each of the light receiving diodes or sensor TFTs." Furthermore, "[t]he electric potential of the source region of the buffer TFT is ... fed to a correction circuit as a sensor output signal" (col. 12, ll. 6 - 8). Thus, even the correction circuit of Fig. 6 of Yamazaki for enhancing luminance of the EL element (col. 12, ll. 54 - 55) does not operate on the basis of the sensed gate connection voltage being less than a maximum available voltage, as generally provided for in claim 1.

Thus, similar to Kimura, Yamazaki fails to disclose identifying a brightest display element by reading the gate connection voltages of the pixels, much less a power controller and a display element brightness controller "configured to increase said voltage on said gate connection of said pixel having said identified display element and to reduce said power supply voltage, to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain a current to said identified display element substantially equal to a predetermined current," as recited in claim 1.

Sakamoto discloses "supplying a constant current driving signal ...detecting a voltage drop in a forward direction of the EL element ... controlling a voltage, which is supplied to the driving device, to have a predetermined voltage value in correspondence to the detection signal" (see abstract; this is further broadly consistent with Fig. 1 and col. 4, ll. 58-65).

Thus, similar to Kimura and Yamazaki, Sakamoto fails to disclose identifying a brightest display element by reading the gate connection voltages of the pixels, much less a power controller and a display element brightness controller "configured to increase said voltage on said gate connection of said pixel having said identified display element and to reduce said power supply voltage, to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain a current to said identified display element substantially equal to a predetermined current," as recited in claim 1.

Young relates to a matrix array display device including a light sensing element for regulating charge stored on a capacitor and responsive to light emitted from the display element so as to regulate operation of the display element (see abstract).

The Office Action of 12/27/2007 referred to text from Young, col. 5, ll. 47- 51, which provides "slight variations of the drain voltage do not affect the current flowing through the display element 30. Consequently, slight variations of the drain voltage do not affect the current flowing through the display element 20. The voltage on the voltage supply line is therefore not critical to the correct operation of the pixels." Because the corollary of this text is that non-slight variations of the drain voltage do affect the current flowing through the display element 20, Young teaches that significant changes in the voltage on the voltage supply line are undesirable. That is, Young teaches away from the claimed subject matter.

Therefore, Young too fails to disclose identifying a brightest display element by reading the gate connection voltages of the pixels, much less a power controller and a display element brightness controller "configured to increase said voltage on said gate connection of said pixel having said identified display element and to reduce said power supply voltage, to a point where the voltage of said adjustable voltage power supply is just sufficient to maintain a current to said identified display element substantially equal to a predetermined current," as recited in claim 1.

For the foregoing outlined reasons, the rejection of claim 1 is traversed as is the rejection of the claims depending therefrom. For similar reasons, the rejection of method claim 17 is likewise traversed. None of the art of record can be fairly described as teaching the recited subject matter, whether taken alone or in combination.

IV. CONCLUSION

In light of the foregoing, Applicant respectfully traverses the rejections of all pending claims, and asserts that this case in condition for immediate allowance.

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Respectfully submitted,

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